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Jose Kolencheril Raphael

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CHOATE, HALL & STEWART / CITRIX SYSTEMS, INC.
TWO INTERNATIONAL PLACE
BOSTON, MA 02110

EXAMINER

STRANGE, AARON N

ART UNIT

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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|------------------------------|--------------------------------------|--------------------------------------|--|
| Office Action Summary | Application No. 09/912,401 | Applicant(s) RAPHEL ET AL. | |
| | Examiner AARON STRANGE | Art Unit 2448 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 February 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 34-64 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 34-64 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This Office Action is a SUPPLEMENTAL action. It is intended to replace the Office action mailed 5/5/2009 in its entirety, since that Office action inadvertently failed to address new claim 64, set forth below.

Response to Arguments

2. Applicant's arguments filed 2/24/09 have been fully considered but they are not persuasive.

3. With regard to claim 49, and Applicant's assertion that "[t]he claim limitation of a 'device configured as an interface unit' ties the claimed subject matter to a particular machine" and that "[b]ecause claim 49 is directed to a particular machine, Applicant's submit that claim 49 is patentable under 35 U.S.C. §101.", the Examiner respectfully disagrees.

Claim 49 is still directed to a "system" having "a device" and a queue. The specification of the present application states that "the present invention may be implemented using ... software" (¶69, ¶74 and ¶75). The claimed "device" is not limited to hardware by the specification or the claims. The Examiner recommends amending the claim to include a device comprising one or more hardware elements of a "computer system", as described in ¶69-70 of the specification.

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4. With regard to claim 34, and Applicant's assertion that "the combination of Cherkasova, Allan and Moore fails to teach or suggest determining performance of the server throughput from monitoring of changes in response times from the server" (Remarks 10), the Examiner respectfully disagrees.

Moore teaches monitoring changes in network conditions, such as response times, to enable devices to respond to the changes as desired (col. 6, l. 63 to col. 7, l. 14). Moore also teaches monitoring whether the response times are "increasing substantially", which requires monitoring the rate at which the response times are changing (col. 6, ll. 64-67).

5. With further regard to claim 34, and Applicant's assertion that "[t]he changes in network performance measured via jitter does not provide a measure of the rate of change to changes in response times from the server" (Remarks 11), the Examiner respectfully disagrees. As an initial matter, it is noted that Moore expressly discloses measuring response times and the rate of change to changes in response times (col. 6, l. 63 to col. 7, l. 14), as discussed above.

Furthermore, latency is a component of the total response time of a server. Therefore, measuring latency and changes in latency does provide a measure of the changes in response time from a server, and measuring the latency portion of the response time helps differentiate between delays caused by the network and delays caused by the server hardware itself. It is noted that the current claims do not require monitoring response times directly, only monitoring changes in response times. Since

latency is a portion of the response time, it is a measurable change in the response time.

6. Applicant's remaining arguments have been considered, but are unpersuasive for at least the reasons discussed above.

Claim Objections

7. Claim 64 objected to because of the following informalities: There appears to be a typographical error "per the per" in line 25. Appropriate correction is required.

Claim Rejections - 35 USC § 101

8. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

9. Claims 49-63 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

10. Claim 49 is directed to a "system" having "a device" and a queue. The specification of the present application states that "the present invention many be implemented using ... software" (¶69, ¶74 and ¶75). The cited portions of the specification would have suggested to one of ordinary skill in the art that the claimed "system" is intended to

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include software-only embodiments. Since the claim is not limited to statutory embodiments, it is non statutory.

11. All claims not individually rejected are rejected by virtue of their dependency from the above claims and their failure to correct the above noted deficiencies.

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. Claims 34-39, 45-54 and 60-63 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cherkasova et al. (US 6,360,270) in view of Allan (US 7,024,477) further in view of Moore et al. (US 7,000,012).

14. With regard to claim 34, Cherkasova discloses a method for managing throughput while avoiding overload of one or more servers, the method comprising the steps of:

transmitting, by an interface unit, client requests to a server to maintain performance of server throughput within a predetermined threshold range (at least Col 5, Lines 51-57);

intercepting, by the interface unit, a request from a client to open a transport later connection with the server (at least Col 4, Lines 15-16);

buffering the intercepted request in a queue (at least Col 4, Lines 21-25); and

transmitting, by the interface unit, the buffered request to the server upon the interface unit determining that the performance of server throughput is within the

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predetermined threshold range (accepted messages are sent to the server if there are sufficient resources) (at least Col 4, Lines 38-44).

Cherkasova fails to specifically disclose monitoring responses to client requests intercepted by the interface unit to determine changes in response times or changes in a rate in which the response times change and determine if the performance of the server exceeds the predetermined threshold range.

Allan discloses a similar system for monitoring web servers. Allan teaches monitoring client requests intercepted by an interface unit to determine if the performance of the server exceeds a predetermined threshold (at least Col 5, Lines 29-67). This would have been an advantageous addition to the system disclosed by Cherkasova since it would have allowed the interface unit to determine the performance information of the servers without polling them or requiring them to determine their own performance information.

Moore also discloses a similar system for monitoring network links. Moore specifically teaches monitoring response times of a network link to determine a rate of change for the response times (i.e., whether the response time is “increasing substantially”)(col. 6, l. 63 to col. 7, l. 14). Moore teaches that the system may use this information when determining how to route network traffic, even if the actual response times are otherwise acceptable (“before they result in actual errors”)(col. 6, ll. 63-64). Monitoring rates of change in response times would have been an advantageous addition to the system disclosed by Cherkasova and Allan since it would have allowed the system to anticipate when a server’s performance will soon exceed the

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predetermined threshold range, and take preventative measures to help maintain the server performance within the threshold range.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to monitor responses to client requests intercepted by the interface unit to determine the performance of the server, including monitoring response times and the rate of change in response times. This would have provided status information for the servers without increasing the load on the servers by polling them or requiring them to determine their own performance statistics, and allowed the system to estimate when a server is likely to exceed the desired threshold range and take preventative measures to help maintain the performance of the server.

15. With regard to claim 35, Cherkasova further discloses that the predetermined range comprises one of a maximum threshold range or an optimal threshold range for server throughput (sessions are dropped/allowed based on the threshold to maintain an optimal load)(at least Col 5, Lines 51-57).

16. With regard to claim 36, Cherkasova further discloses that the predetermined threshold range comprises a first threshold at a lower point in the predetermined threshold range and a second threshold at a higher point in the predetermined threshold range, the first threshold represents one of a faster response time (at least Col 7, Lines 46-51), a lesser number of users, or a greater number of connections (less refused

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connections)(at least Col 4, Lines 8-11) that the second threshold (at least Col 5, Lines 51-57).

17. With regard to claim 37, Cherkasova further discloses transmitting, by the interface unit, client requests to the server to maintain performance of a server throughput one of at or near the first threshold (at least Col 5, Lines 51-57).

18. With regard to claim 38, Cherkasova further discloses determining, by the interface unit, the performance of the server throughput based on monitoring one or more of: the number of active connections opened to the server (at least Col 7, Lines 46-51), the response time of the server, the rate at which the response time is changing, and the intercepted request (request is monitored to see if it is accepted)(at least Col 4, Lines 7-12).

19. With regard to claim 39, Cherkasova further discloses determining, by the interface unit, the performance of the server throughput based on a first portion of server resources available to service existing clients and a second portion of server resources available to accept new clients (new sessions are rejected once utilization exceeds a threshold, showing that the service level is unsatisfactory)(at least Col 5, Lines 51-57).

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20. With regard to claim 45, Cherkasova further discloses determining, by the interface unit, the performance of server throughput by one of a number of requests pending at the server or server error/overload messages from the server (session refusals)(at least Col 4, Lines 7-12).

21. With regard to claim 46, Cherkasova further discloses establishing, by the interface unit, the transport layer connection with the client in response to request from the client (new session is created for the requests) (at least Col 4, Lines 38-42).

22. With regard to claim 47, Cherkasova further discloses opening, by the interface unit, a second transport layer connection to the server if there is not a free transport layer connection to the server (new sessions are created for requests not associated with an existing session) (at least Col 4, Lines 36-42).

23. With regard to claim 48, Moore further discloses that monitoring further comprises the interface unit monitoring changes in times between the interface unit forwarding intercepted client requests to the server and the interface unit receiving the responses to the forwarded intercepted client requests from the server and changes of a rate in which differences between the changes in times change (response times are monitored)(col. 6, l. 63 to col. 7, l. 14).

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24. Claims 49-54 and 60-63 are rejected under the same rationale as claims 34-39 and 45-48, since they recite substantially identical subject matter. Any differences between the claims do not result in patentably distinct claims and all of the limitations are taught by the above cited art.

25. Claims 40, 41, 55 and 56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cherkasova et al. (US 6,360,270) in view of Allan further in view of Moore et al. (US 7,000,012) further in view of Phaal (US 6,006,269).

26. With regard to claim 40, while the system disclosed by Cherkasova, Allan and Moore shows substantial features of the claimed invention (discussed above), it fails to specifically disclose identifying a preferred client value for the request of the client, and determining the position of the client request in the queue based on the preferred client value.

Phaal teaches identifying a preferred client value (priority status) for the request of a client, and determining the position of the client request in the queue based on the preferred client value (priority status requests are handled before any other requests)(at least Col 8, Line 66 to Col 9, Line 50). This would have been an advantageous addition to the system disclosed by Cherkasova, Allan and Moore since it would have allowed different client requests to be prioritized, ensuring that all requests are handled in a timely manner.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to identify a preferred client value and determine the position of the client request in the queue based on the preferred client value in order to prioritize previously deferred requests and ensure that they are handled in a timely manner.

27. With regard to claim 41, Phaal further discloses determining, by the interface unit, the preferred client value, from one or more of the internet address of the client request, the port number of the client request, by a header related to the client request, by previous requests from the client of the client request, and by a cookie related to the client request (cookie) (at least Col 10, Lines 3-21).

28. Claims 55 and 56 are rejected under the same rationale as claims 40 and 41, since they recite substantially identical subject matter. Any differences between the claims do not result in patentably distinct claims and all of the limitations are taught by the above cited art.

29. Claims 42-44 and 57-59 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cherkasova et al. (US 6,360,270) in view of Allan further in view of Moore et al. (US 7,000,012) further in view of Shabtay et al. (US 2002/0120743).

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30. With regard to claims 42 and 43, while the system disclosed by Cherkasova, Allan and Moore shows substantial features of the claimed invention (discussed above), it fails to specifically disclose pooling a plurality of transport layer connections or multiplexing client requests via the pooled connections.

Shabtay teaches pooling connections and multiplexing client requests via the pooled connections (at least ¶47). This would have been an advantageous addition to the system disclosed by Cherkasova, Allan and Moore since it would have reduced the load on the server in handling transport layer connections (at least ¶10).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to pool connections and multiplex client requests over the pooled connections since it would have reduced the load on the server.

31. With regard to claim 44, Shabtay further discloses closing, by the interface unit, transport layer connections to the server to bring performance of server throughput within the predetermined threshold range (at least ¶34).

32. Claims 57-59 are rejected under the same rationale as claims 42-44, since they recite substantially identical subject matter. Any differences between the claims do not result in patentably distinct claims and all of the limitations are taught by the above cited art.

Allowable Subject Matter

33. Claim 64 is allowable over the prior art or record. However, claim 64 remains subject to an objection, set forth above.

Conclusion

34. Any inquiry concerning this communication or earlier communications from the examiner should be directed to AARON STRANGE whose telephone number is (571)272-3959. The examiner can normally be reached on M-F 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Firmin Backer can be reached on 571-272-6703. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Aaron Strange/
Primary Examiner, Art Unit 2448